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(54) Electronic mail system

(57) Known electronic mail systems enable their subscribers to exchange messages with each other, using computers with dedicated software.

In the electronic mail system (1) according to the present invention, subscribers are also able to read messages present in their mailboxes, using a TV-receiver (23) with teletext decoder. Thereto the electronic mail system (1) comprises request handling means (13), preferably formed by a value added telephone service, for handling requests for reading messages via teletext, read-out means (15) for reading the electronic messages from the electronic mailboxes (P1,P2..Pn), if a request thereto has been received by the request handling means (13) and sending the electronic messages to message insertion means (19), the message insertion means (19) being equipped for inserting the electronic messages into a TV-signal (TV), according to a teletext standard.

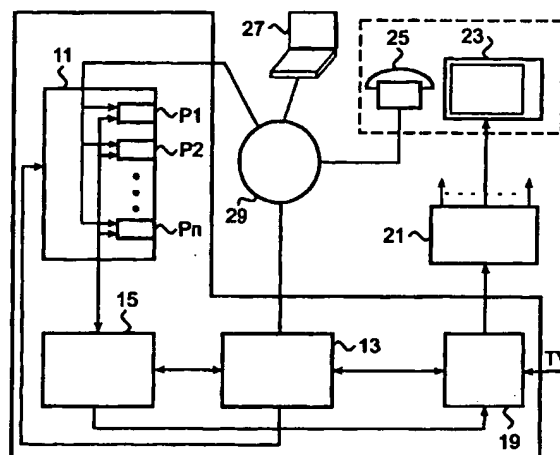


Fig. 1

Description

Background of the invention

The present invention relates to an electronic mail (E-mail) system comprising electronic mailboxes for receiving electronic messages. Such an electronic mail system is generally known. In electronic mail systems the system operator allocates mailboxes to the subscribers of the system. Each mailbox has an electronic mail address. The subscribers are able to exchange electronic messages with each other via the mailboxes, using electronic mail addresses to indicate to which mailbox messages are to be directed. In order to send and receive messages, the subscribers of the system need to be in the possession of a computer with appropriate software and, if the connection to the mail system is made by the computer via the public telephone network, also a modem. In known electronic mail systems, a subscriber is only able to read the messages from his mailbox, making use of such appropriate computer equipment. This has the drawback, that when the subscriber is at a place, where he does not have access to such computer equipment, e.g. during a business trip, he is unable to read the messages stored in his mailbox. This may lead thereto, that urgent or important messages may remain unnoticed to the subscriber, while he is absent.

Summary of the invention

It is an object of the present invention to provide an electronic mail system, in which the subscribers have access to messages stored in their mailboxes, even when they find themselves at places, where they do not have computer equipment at their disposal. Furthermore it is an object of the present invention to give subscribers, who do not have a computer at all, access to the electronic mail system. Thereto the electronic mail system according to the present invention is characterized in that, it further comprises

- request handling means for handling a request of a subscriber for reading out at least an electronic message present in an electronic mailbox belonging to the subscriber, which request handling means can be contacted by the subscriber, and which request handling means are designed for sending to read-out means an instruction command for reading out the electronic messages from the electronic mailbox, if the request is accepted,
- the read-out means, being designed for reading out the electronic message from the electronic mailbox and transmitting the electronic message to message insertion means, upon reception of the instruction command, and
- the message insertion means being designed for inserting the electronic message into a TV-signal,

according to a teletext standard.

So, in the electronic mail system according to the present invention, the messages from a subscriber's mailbox may be read, using any TV-receiver having a teletext decoder. This means, that the electronic mail system according to the present invention enables subscribers to get access to their mail box messages from any place, where such a TV-receiver with teletext decoder is present, for example the hotel room, where the subscriber is staying during a business trip. The electronic mail system according to the present invention furthermore gives access to subscribers, who do not have computer equipment at all, such as elderly people, by using their television sets at home. The request handling means may, for example, be made up by a value added telephone service, which can be contacted using any telephone set. By calling this value added telephone service, a subscriber is able to request, that the message or messages present in his mailbox is or are sent to teletext.

An embodiment of the electronic mail system according to the present invention is characterized in that, the request handling means are designed for communicating data concerning a TV-channel and a teletext page on which the electronic message is present to the requesting subscriber. In this way the requesting subscriber knows exactly on which TV-channel and on which teletext page he has to look for the message from his mailbox.

A further embodiment of the electronic mail system according to the present invention is characterized in that, the request handling means comprise storage means for storing personal identification numbers belonging to electronic mailboxes and comparing means for comparing a personal identification number inserted by the subscriber requesting reading out the electronic message from the electronic mailbox with the stored personal identification number belonging to that electronic mailbox, the request handling means being designed for sending the instruction command to the read-out means for reading out the electronic message, only if these two personal identification numbers are equal. In this way it is achieved, that only the subscriber to a mailbox himself is able to request that the message present in that mailbox is sent to teletext, while it is avoided, that other persons can do this.

A still further embodiment of the electronic mail system according to the invention is characterized in that, the request handling means are designed for handling a subscriber's request for sending an electronic message to an electronic mailbox, the request handling means being designed for transmitting the electronic message to the message insertion means, the message insertion means being designed for inserting the electronic message into a TV-signal, according to a teletext standard, and the request handling means further being designed for sending the electronic message to the electronic

mailbox, when an approval is received from the requesting subscriber. With the electronic mail system according to this embodiment, subscribers are also able to send electronic messages to mailboxes, without using computer equipment. The message to be sent is shown on teletext in order to be checked by the subscriber. The request handling means send the electronic message to the requested mailbox, when the subscriber's approval thereof is received.

The present invention also relates to a method of reading out an electronic message present in an electronic mailbox of an electronic mail system. The method according to the present invention is characterized by the following steps:

- receiving a subscriber's request for reading out the electronic message by request handling means,
- the transmission by the request handling means of an instruction command for reading out the electronic message to read-out means, if the request is accepted,
- upon reception of the instruction command by the read-out means, reading out the message and transmitting it to message insertion means, and
- the insertion of the message into a TV-signal according to a teletext standard by the message insertion means.

European patent application 0 396 186 of the applicant discloses a teletext system, which is coupled to a public electronic mail system. A message may be directed to teletext in an easy way, by sending it to a dedicated mailbox of the public electronic mail system. It is however, not possible for a subscriber of the electronic mail system to request the sending of the messages present in his mailbox to teletext, as in the system of the present invention.

Netherlands's patent 1004167 of the applicant discloses an electronic mail system in which a subscriber is notified for example by telephone, when a message has arrived for him. The notification is sent to a predetermined terminal, such as the subscriber's home telephone set or fax. Upon this notification, the subscriber can get access to the message by using a second terminal, such as a personal computer or a TV-set having teletext. Netherlands's patent 1004167, however, does not disclose, request handling means, which can be contacted by the subscriber on his own initiative, by using any available telephone set, as in the system according to the present invention.

European patent application 0 723 369 discloses in a very general way a method of transforming the Internet World Wide Web protocol into teletext information. This has a result, that Internet information can be shown via teletext. This document, however, does not disclose technical means making it possible for a subscriber to request the sending of messages present in his mailbox to teletext.

References

- EP 0 396 186
- EP 0 723 369
- NL 1004167
- Chambers, J.P.
BBC Datacast
EBU Rev. Tech. (Belgium), no. 222, pages 80-89,
April 1987

All references are deemed to be incorporated in this application.

Brief description of the drawings

The invention will be further explained with reference to the accompanying drawing, in which

figure 1 shows an electronic mail system according to the present invention, and
figure 2 shows the request handling means thereof in more detail.

Exemplary embodiments

In figure 1 an electronic mail system 1 according to the present invention is shown. It comprises a mail server 11, comprising a number of mailboxes P1, P2, ..., Pn belonging to subscribers to the system. The mail server 11 is not further described here, because it is generally known prior art. The electronic mail system 1 further comprises request handling means 13, read-out means 15 and message insertion means 19. The message insertion means 19 are equipped for inserting messages into information free zones of a TV-signal TV according to a teletext standard such as the CCIR Teletext standard B. The message insertion means 19 are coupled to TV-signal broadcasting means 21, for broadcasting the TV-signal to a great number of television receivers 23 (only one of them is shown). The mail server 11 is connected to the Public Switched Telephony Network (PSTN) 29. To the PSTN 29 in a known way telephone sets 25 (only one shown) and computers 27 (only one shown) can be coupled. Furthermore the request handling means 13 are coupled to the PSTN 29.

Let us assume, that the user of computer 27 is a subscriber to the electronic mail system 1, having mailbox P1. The user of computer 27 can send messages to other subscribers of the electronic mail system and also read messages received by his mailbox P1, using his computer 27 with appropriate software, setting up a communication with the mail server 11. No further description of the exchange of electronic messages is given, here, because this is well known prior art. Let us assume now, that the subscriber is at a business trip or on holidays and finds himself in a hotel room (indicated by the dashed line) having a telephone set 25 and a tel-

vision receiver with a teletext decoder 23. In order to read the electronic messages present in his mailbox P1, he calls the request handling means 13 using telephone set 25. It is, by the way, possible to call the request handling means 13 from every telephone set connected to the PSTN 29. The request handling means preferably are formed by a value added telephone service. They are shown in more detail in figure 2. The request handling means comprise a call handler 130, storage means 132 for storing Personal Identification Numbers (PINs) of subscribers of mail boxes and comparator means 134. The call handler 130 is designed for handling incoming calls. The call handler 130 is for example a voice response system, which directs questions to the requesting subscriber about his wishes, using recorded voice messages. The requesting user answers the questions, using the Dual Tone Multiple Frequency (DTMF)-buttons of his telephone. This technique is not described in more detail here, because it is widely known prior art. Amongst the questions to be answered by the requesting user are at least the question, which one his mailbox is, and the question what his Personal Identification Number (PIN) is. The request handling means check, if the given PIN is the same as the one stored in the storage means 132 in conjunction to the mailbox in question, in the present example mailbox P1, using comparator 134. If this is the case, an instruction command is sent to the read-out means 15 to read the messages from mailbox P1. The read-out means keep up as the subscriber of any of the mailboxes of mail server 11. They are made up by a small computer device with communication facilities and loaded with appropriate software. The read-out means 15 transmit the messages read from mailbox P1 to the message insertion means 19. In figure 1 the read-out means 15 and the message insertion means 19 are shown to have a direct connection. It is, however, also possible that the read-out means send the messages to the message insertion means 19 using the Public Switched Telephony Network 29. The message insertion means 19 are equipped for inserting the messages into a TV-signal, at places where there is no picture or sound information present in confirmation with a teletext standard, such as CCIR Teletext standard B. The message insertion means 19 may form part of a plurality of other electronic mail systems according to the present invention (not shown). The TV-signal broadcasting means 21 are designed for broadcasting the TV-signal to a great number of TV-receivers 23. The TV-signal broadcasting means 21 may be of any suitable type. The message insertion means 19 may be coupled by data lines to various other sources of teletext messages. A more detailed description of a teletext system is found in the article "BBC Datacast" of J.P. Chambers, EBU Rev. Tech. (Belgium), no. 222, pages 80-89, April 1987.

So, by inserting data indicative of his mailbox P1 and his Personal Identification Number the subscriber of mailbox P1 can read the messages in his mailbox,

using his TV-receiver 23. The Personal Identification Number can for example be communicated to the subscriber of the mailbox by normal mail, after his subscription to the electronic mail system.

In the same way, subscribers of the other mailboxes P2..Pn may request, that the messages in their mailboxes are sent to teletext. The request can be made by using any available telephone set and the messages can be read using any available TV-receiver.

Alternatively, the request handling means may be designed to handle requests from subscribers to send the messages present in their mailbox to teletext at a predetermined time in the future. This enables subscribers to direct their request to the request handling means before travelling, in this way avoiding the use of expensive hotel telephones.

Furthermore, the call handler 130 may be designed to send an instruction command to the read-out means to read the titles and the senders of the messages present in the mailbox, after that the Personal Identification Number of the requesting subscriber has been checked and approved. The read out means 15 return these data to the call handler 130. The call handler comprises an automatic speech generator to translate these data into speech, which is directed to the requesting subscriber via the telephone network 29. By using DTMF-buttons on the telephone set 25, the subscriber may select which messages he wishes to be shown on teletext. The call handler 130 communicates the subscriber's choice to the read-out means 15, which as already described here above read the messages from the mailbox and send them to the message insertion means 19, in order to be sent to teletext. In this way it is avoided, that classified messages possibly present in the mailbox of the requesting subscriber, are shown on teletext and read by other persons in the possession of a TV-receiver with teletext decoder. Alternatively, the read out means 15 may be designed to read out only the titles and the senders of all the messages present in the mailbox, which titles and senders are inserted into the TV-signal by the message insertion means 19. The subscriber then sees the titles and senders on teletext and is enabled select messages, that he wants to see, using the buttons of his telephone set. After having read the messages, the user is enabled to delete them, again using the buttons of his telephone set.

Furthermore the request handling means 13, preferably are designed to communicate the TV-channel and the teletext page at which the messages are present to the requesting subscriber. Thereto the message insertion means 19 are designed to communicate this information to the request handling means 13.

Finally, the request handling means 13 may also be designed to handle requests from subscribers to send electronic messages to other mailboxes, when they do not have access to their computers 27. This can be done in the following way: A subscriber calls the request handling means 13 using a telephone set 25. He indi-

cates that he wants to send a electronic mail message, for example, using the DTMF-buttons of his telephone set 25. He also has to type in data relating to his mailbox and his PIN. The call handler 130 then sends a request to the message insertion means 19 for appointing an empty teletext page to the requesting subscriber. The number of this page is communicated to the call handler 130, which at its turn communicates this page number to the requesting subscriber. Then the requesting subscriber has to type in the message to be sent. This may be done using the DTMF-buttons of the telephone, using an appropriate protocol, for example pushing button number 1 once means 1, pushing button number 1 twice means A, pushing button number 1 three times means B, pushing button number 1 four times means C, pushing button number 2 once means 2, pushing button number 2 twice means D etc. The request handling means 13 send the characters typed in by the requesting user to the message insertion means 19, which direct these characters to the appointed teletext page. By watching this teletext page, using the TV-receiver 23 with teletext decoder, the subscriber, sees the message that he is typing. As soon as the message is ready, the subscriber must approve the sending thereof. This may be done using for example the button * of his telephone set. The request handling means 13 then direct the message to the right mailbox.

Alternatively, the subscriber, calling the request handling means 13, may be connected to a typist for dictating the message to be sent. The typist types the message, which at the same time is sent to a teletext page for inspection by the subscriber. The subscriber then approves the message verbally, and the message is sent to the right mailbox. Furthermore it is possible to use a voice recognition system, which recognizes a spoken message of the requesting subscriber and convert it into a written message to be sent to teletext. This enables the subscriber to send a message in a very easy way.

Of course the electronic mail system according to the present invention may also be used by people, who do not have a personal computer at all, for example elderly people.

It will be understood by those skilled in the art that the embodiments described above are given by way of example only and that many modifications and additions are possible without departing from the scope of the present invention.

Claims

1. Electronic mail system (1) comprising electronic mailboxes (P1..Pn) for receiving electronic messages, characterized in that, the electronic mail system (1) further comprises

- request handling means (13) for handling a request of a subscriber for reading out at least

an electronic message present in an electronic mailbox belonging to the subscriber, which request handling means (13) can be contacted by the subscriber, and which request handling means (13) are designed for sending to read-out means (15) an instruction command for reading out the electronic messages from the electronic mailbox, if the request is accepted,

- the read-out means (15), being designed for reading out the electronic message from the electronic mailbox and transmitting the electronic message to message insertion means (19), upon reception of the instruction command, and
- the message insertion means (19) being designed for inserting the electronic message into a TV-signal (TV), according to a teletext standard.

2. Electronic mail system (1) according to claim 1, characterized in that, the request handling means (13) are designed for communicating data concerning a TV-channel and a teletext page on which the electronic message is present to the requesting subscriber.

3. Electronic mail system (1) according to one of the claims 1 or 2, characterized in that, the request handling means (13) comprise storage means (132) for storing personal identification numbers (PIN1..PINn) belonging to electronic mailboxes (P1..Pn) and comparing means (134) for comparing a personal identification number inserted by the subscriber requesting reading out the electronic message from the electronic mailbox with the stored personal identification number belonging to that electronic mailbox, the request handling means (13) being designed for sending the instruction command to the read-out means (15) for reading out the electronic message, only if these two personal identification numbers are equal.

4. Electronic mail system (1) according to one of the preceding claims, characterized in that, the request handling means (13) are designed for handling a subscriber's request for sending an electronic message to an electronic mailbox, the request handling means (13) being designed for transmitting the electronic message to the message insertion means (19), the message insertion means (19) being designed for inserting the electronic message into a TV-signal (TV), according to a teletext standard, and the request handling means (13) further being designed for sending the electronic message to the electronic mailbox, when an approval is received from the requesting subscriber.

5. Method of reading out an electronic message

present in an electronic mailbox of an electronic mail system (1), characterized by the following steps:

- receiving a subscriber's request for reading out the electronic message by request handling means (13), 5
- the transmission by the request handling means (13) of an instruction command for reading out the electronic message to read-out means (15), if the request is accepted, 10
- upon reception of the instruction command by the read-out means (15), reading out the message and transmitting it to message insertion means (19), and 15
- the insertion of the message into a TV-signal (TV) according to a teletext standard by the message insertion means (19).

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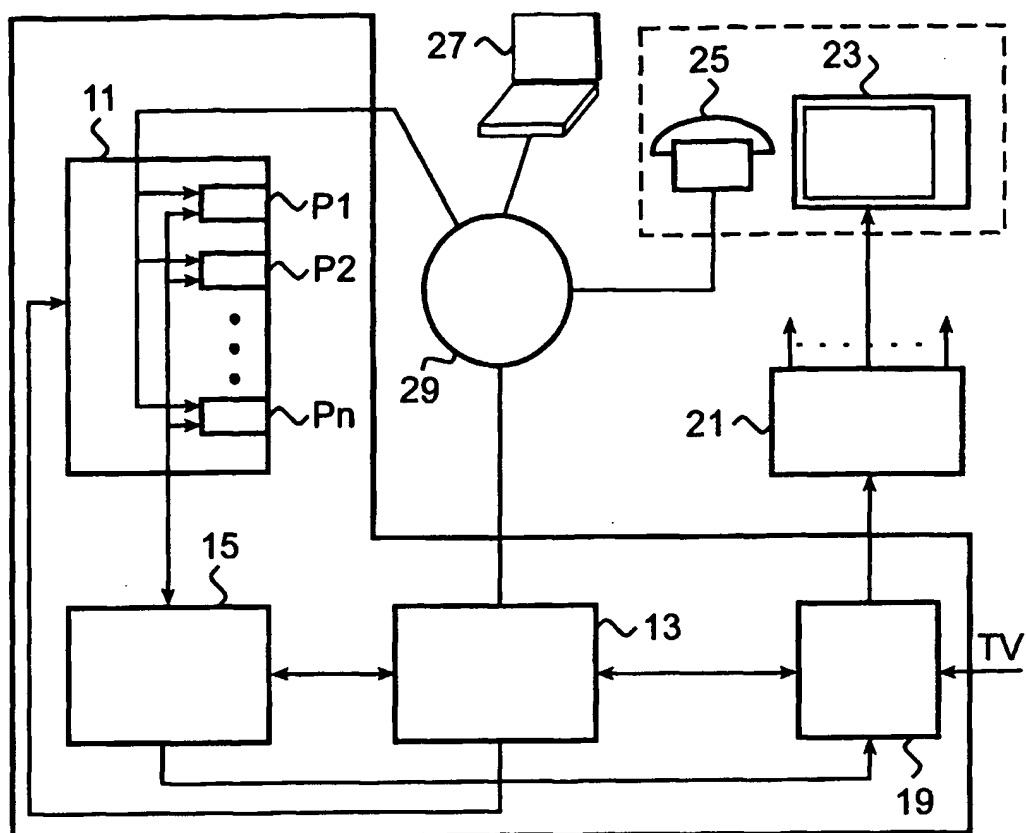


Fig. 1

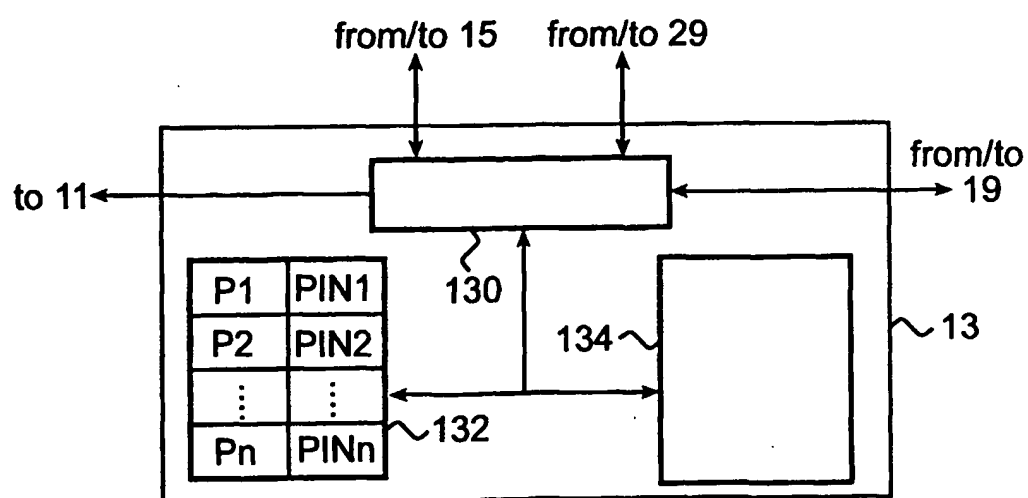


Fig. 2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 20 1551

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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Y	* page 1, line 18 - line 28 * * page 1, line 30 - line 34 * * page 4, line 8 - line 10 * * claim 13 *	2,3	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 October 1997	Examiner Karavassilis, N
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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